# KACHEMAK BAY RESEARCH RESERVE

# JUVENILE SALMON REARING AND MIGRATORY HABITATS OF THE FOX RIVER ESTUARY

**ISSUE:**

Estuaries are considered to be important juvenile salmon transitional habitats during migration to the ocean. The gradual transition from freshwater to saltwater environments provided by estuaries is thought to provide buffering against osmoregulatory and physiological stress. Some estuaries may also provide rearing habitats for juvenile salmon. The information that is available for juvenile salmon use of estuarine habitats in high latitude areas including Alaska is limited. We have initiated investigations on juvenile salmon use of estuarine habitats in the Fox River estuary at the head of Kachemak Bay. Our first year of investigation centered on conducting a study to identify habitats that could be sampled over time while providing representative data. The second year of our study examines how juvenile salmon use tributary habitats in the Fox River estuary in more detail. We are describing fishes' diet composition, growth rates, and prey availability in these habitats. Such information may suggest these habitats are functioning as rearing habitats rather than ephemeral habitats for juvenile salmon migrating to sea.

**OBJECTIVES:**

1. Describe the relative availability of prey organisms for juvenile salmon in the tributaries sampled.
2. Describe diet composition of juvenile salmon in the tributaries sampled.
3. Index the relative abundance of juvenile salmon and monitor their growth in the tributaries sampled.

**HIGHLIGHTS**

- Our preliminary study in 2009 showed differences in timing that juvenile salmon occupied habitats in the estuary.
- The extreme tidal range of Kachemak Bay (28+ feet) in addition to high river flows from glacial melt created considerable challenges for access and sampling.

*Pole seining in estuary tributaries proved an effective method for capturing juvenile salmonids.*

**STATUS: ONGOING**

**PARTNERS**

- UNIVERSITY OF ALASKA FAIRBANKS

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